

WHAT IS CLAIMED IS:

5      1. A method of manufacturing a single crystal without using any seed crystal, comprising the steps of:

          (a) preparing a raw material polycrystalline rod; and

          (b) heating and melting the raw material polycrystalline rod to form a molten zone and then cooling and solidifying the molten zone successively in the length direction, such that a fiber-shaped single crystal, which is 3 mm or smaller in diameter, grows in the direction normal to the densest surface.

          2. The method of manufacturing a single crystal as claimed in claim 1, wherein the single crystal is an oxide single crystal.

10        3. The method of manufacturing a single crystal as claimed in claim 1 or 2, wherein step (b) is performed using the Floating Zone Method.

          4. The manufacturing method of a single crystal as claimed in claim 1 or 2, wherein step (b) is performed using the Laser Heated Pedestal Growth method.

          5. A single crystal produced by the method of claims 1 or 2.

15        6. A single crystal produced by the method of claim 3.

          7. A single crystal produced by the method of claim 4.